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Research into Certain Animal Diseases.*

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SWINE ERYSIPELAS.

The method adopted in the production of an anti-swine erysipelas serum is to inject horses intravenously with dead cultures of *B. erysipelatis suis*, followed later by living cultures. The testing of its potency can be carried out with mice (the official German method), though we have, on the whole, got more consistent results with pigeons.

Table I. gives the results of testing on mice the protective power of some serum we have recently made. In the experiment a standard culture of the organism on agar was used which, when washed off and diluted suitably with normal saline solution, killed mice regularly in five days after the intravenous injection of 1 c.c.

Table 2 is a comparison of serum produced by one of our horses with two Continental official samples. In the experiments indicated, pigeons were used; the culture and serum were mixed and stood for an hour at room temperature before being injected intramuscularly. Readings were taken daily up to four days.

This test is the one widely used on the Continent; apparently the results obtained by this method in which the culture and serum are mixed and in which the bactericidal properties are given full play, gives results consistent with those obtained when the serum and culture are injected separately into the animal. (See Table I.).

TABLE I.

Serum.	*Dose.*	*Result.*
Horse A.	0·1 c.c.	L L
	0·075 c.c.	L L
	0·05 c.c.	L L
	0·025 c.c.	D4 D4
	0·01 c.c.	D2 D2
N.H.S.	0·1 c.c.	D2 D2
No serum	—	D2 D2

L = Lived.
D5 D4 = 1 mouse of pair died 5th day and the other mouse 4th day.
Serum intraperitoneally and same dose of culture intravenously given 24 hours later to all mice.

*Presented to the Central Veterinary Society at Langley Court, Beckenham, on June 11th 1925.

TABLE 2.

Serum.	*Dose Serum.*	*Culture.*	*Result.*
X	0·3 c.c.	500 M.L.D.	L
	0·2 c.c.	,,	L
	0·1 c.c.	,,	D4
Y	0·3 c.c.	,,	L
	0·2 c.c.	,,	D3
	0·1 c.c.	,,	D3
W.P.R.L.	0·3 c.c.	,,	L
	0·2 c.c.	,,	L
	0·1 c.c.	,,	D4
No serum	—	,,	D3
	—	100 M.L.D.	D4
	—	10 M.L.D.	D4

Pigeons used. Serum and culture mixed and injected intramuscularly.
L = Lived.
D4 = Pigeon died 4th day.

THE TESTING OF B. BRONCHISEPTICUS SERUM AND VACCINE.

Because of the relative frequency with which *B. bronchisepticus* can be isolated during some outbreaks of canine distemper, in pure culture from the tissues of affected dogs, serum and vaccines made from strains of this organism have been used for curative and prophylactic purposes. Success has been claimed by some veterinary surgeons from their use in some outbreaks of distemper.

B. bronchisepticus Serum.

The serum is prepared by injecting horses with increasing doses of dead or living cultures of the organism—several strains being used. Guinea-pigs are used in testing the protective value of such serum. Table 3 represents an experiment to ascertain the smallest dose of serum protecting against a certain lethal dose of culture. To make certain that we were not testing merely for bactericidal properties in vitro, we injected serum in another experiment 24 hours before the culture. Table 4 seems to show that the serum was really anti-bacterial in the body.

Anti-bronchisepticus Vaccine.

Tables 5, 6, 7 show the evolution of the method now recommended for vaccinating dogs against *B. bronchisepticus* infection, *i.e.*, two doses of a killed vaccine followed by one dose of living culture. Table 5 shows that a high degree of protection was obtained after one dose of killed culture, five out of six animals surviving when tested a month later. Table 6 indicates that two doses of killed culture acted similarly while Table 7 sets forth the result got by adding a dose of a living culture; complete protection is evident fourteen days after the last dose of vaccine.

To show that the third dose, when a living culture is used, gives better results than killed culture, the experiment indicated in Table 8 was carried out. Complete protection was found in three weeks after the dose of living culture, while complete protection is not found until five weeks following the third dose of killed culture.

We do not wish to stress unduly this one experiment. This and other evidence we have is in favour of the third dose being a living culture. Until evidence accumulates that will convince us that a third dose of dead is as efficient as living, we think it wise to adopt the third dose of living culture.

TABLE 3.

Anti-bronchisepticus Serum (Horse A).		*Result.*
1·0 c.c.	4 c.c. culture B. bronchi-septicus	L L
0·5 c.c.		L L
0·25 c.c.		L L
0·1 c.c.		D D
Normal Horse Serum 1·0 c.c.		D D
No serum	....	D .....

L =Lived. D =Died.

Serum and Culture mixed and allowed to stand before intraperitoneal injection into guinea-pigs.

TABLE 4.

Serum.	*Culture.*	*Result.*
Anti-bronch. serum Horse A. 5 c.c.	5 c.c.	L
„	4 c.c.	L
„	3 c.c.	L
„	2 c.c.	L
Normal Horse Serum 5 c.c.	5 c.c.	D
„	4 c.c.	D
„	3 c.c.	D
„	2 c.c.	L

All injections intraperitoneal: serum 24 hours before culture.

D =Died. L =Lived.

TABLE 5.

Inoculation.	*Test.*	*Result.*
0·25 c.c. Killed culture subcut.	4·0 c.c. living B. bronch. intra-peritoneally 4 weeks later.	L.L.L.L.L.D. P.M.T.
Control—	No Vaccine	D. P.M.T.

D =Died. L =Lived.

P.M.T. =Post mortem typical B. bronch. found.

TABLE 6.

1st Inoc.	*2nd Inoc.*	*Test.*	*Result.*
0·25 c.c.	0·5 c.c. killed culture subcut. 7 days later.	4 c.c. living B. bronch. intraperit. 3 weeks later.	L
			L
			L
			L
			L
			D. P.M.T.
Control—	No vaccine		D. P.M.T.

D =Died. L =Lived.

P.M.T. =Post-mortem typical B. bronch. found.

TABLE 7.

1st Inoc.	*2nd Inoc.*	*3rd Inoc.*	*Test.*	*Result.*
0·25 c.c. *Killed* cult. subcut.	0·5 c.c. *Killed* cult. subcut. 7 days later.	0·25 c.c. *Living* cult. subcut. 7 days later.	4·0 c.c. *Living* cult. intraperit. 14 days later	L
				L
				L
				L
				L
Controls—No vaccine.				D.D. P.M.T.

L =Lived. D =Died.

P.M.T. =Post-mortem typical B. bronch. found.

Avian Diphtheria (Roup).

Avian Diphtheria is the term applied to a contagious disease in fowls presenting numerous symptoms, all or any of which may be present during an outbreak. Because of the possibility of more than one disease being included under the term and that each special

TABLE 8.

G.P.	*1st Inoculation.*	*2nd Inoculation.*	*3rd Inoculation.*	*Test.*	*Result.*
1	0·5 c.c. *Killed* cult. subcut.	1·0 c.c. *Killed* cult. subcut. 7 days later	0·5 c.c. *Living* cult. subcut. 7 days later	4·0 c.c. Living cult. intraperit. 3 weeks later	L
2					L
3					L
4			2·0 c.c. *Killed* cult. subcut. 7 days later		D P.M.T.
5	Control–No vaccine		2 doses as 1 and 2	As above	L
6	2 doses as above			4 weeks later	L
7			2 doses as 3 and 4		L
8					D P.M.T.
9					D P.M.T.
10	Control–No vaccine		2 doses as 1 and 2	As above 5 weeks later	L
11	2 doses as above				L
12			2 doses as 3 and 4		L
13					L
14					L
15					D P.M.T.
16	Control–No vaccine				

L =Lived. D =Died.

P.M.T. =Post-mortem typical, B. bronch. found.

symptom may represent a different disease it was decided to attempt to reproduce the various symptoms in different fowls, using the same infecting agent. Scales from the combs of infected birds were emulsified in 50 per cent. glycerin in saline and strained through glass wool. Table 9 shows the results of applying this emulsion in various ways; it is interesting that intravenous inoculation produces the various symptoms associated with the disease. The question of natural infection was studied. Hens suffering from the natural disease were allowed to run with normal birds. Table 10 indicates that the disease we worked with was contagious.

Experimentally infected fowls were also penned with healthy birds which contracted the disease (Table 11). Samples of scales from infected hens were obtained from various sources. All were found to be infective though their degree of virulence varied. Table 12 indicates the results of testing one highly virulent sample.

Experiments were arranged to test whether birds which recovered from the natural disease were immune against artificial infection. The immunity was high (Table 13). Recovery from an attack conferred artificially by one strain conferred a high, but not complete immunity to massive infection by the same strain (Table 14) and by another strain (Table 15). These results suggest that there is one causal agent only producing avian diphtheria.

Many vaccines for the prevention of roup are available. Good results are claimed for some. We have experimented with a vaccine made according to the well known Beach's method.

Table 16 gives the results of one experiment where doses of virulent material infected vaccinated birds up to four weeks after vaccination, but not at six weeks.

Serum from immunised hens which received several inoculations of dead, and later, living infective material has been used experimentally for protective purposes.

TABLE 9.

Hen.	*Inoculation.*	*Result.*
7	Combs and wattles scarified and emulsion rubbed into comb	Comb + + Mouth + +
23	As 7	Comb + + Mouth + +
32	Emulsion rubbed into palate	Mouth + + Eye + + Nose + +
33	As 32	Mouth + + Eye + + Nose + +
0	1 c.c. intravenously ...	Comb + + + Wattle + + + Mouth + + + Eye + + + Nose + + +

+ + =lesions of moderate size.
+ + + =very large lesions.

We have done but few experiments up to now, but in two completed experiments, the serum of the immunised hens, when injected into normal birds has protected them against a subsequent inoculation of virulent material. Further work is in progress If the early experiments are confirmed, we may be able with immune serum to save a flock of hens in which roup has broken out We think that this serum is also curative, but we shall report later on this aspect of the work. Work is also in progress with filtered material.

TABLE 10.

Hens 10 and 31 put in contact with B hens (comb lesions); both contracted comb lesions in 14 days.
Hens 103 and 104 put in contact with G hens (mouth lesions); both contracted mouth lesions in 10 days.

TABLE 11.

Exp. infected Hen.	*Contact Hen.*	*Result.*
12 & 18 (Comb)	19 29	Comb +(14 days). Comb + +(9 days). Mouth + +(15 days).
34 & 200 (Comb)	14 500	Comb + +(8 days). Comb + +(8 days).
7 & 23 (Comb)	613	Mouth + + +(14 days). Nose + + +(14 days). Comb + + +(14 days).
32 & 33 (Mouth)	615	Nil.

+ =slight lesions.
+ + =moderately large lesions.
+ + + =very large lesions.
Nil. =No lesions.

TABLE 12.

1.—*Comb inoculations* (comb scarified and emulsion rubbed in).

Hen.	*Dilution of Emulsion.*	*Result.*
611	1—10	Comb, wattle & mouth + + +
610	1—100	Comb, wattle + + +
26	1—1,000	Comb, wattle + + +
102	1—10,000	Comb, wattle & mouth + + +
5	1—100,000	Comb + + +
607	1—1,000,000	Comb, wattle + +
605	1—10,000,000	Nil.
603	1—100,000,000	Nil.
601	1—1,000,000,000	Nil.

2.— *Intravenous Inoculations.*

612	1—10	Comb & wattle + + +
14	1—100	Mouth + + +
16	1—1,000	Nil.
6	1—10,000	Nil.
27	1—100,000	Nil.
606	1—1,000,000	Nil.
604	1—10,000,000	Nil.
602	1—1,00,000,000	Nil.
600	1—1,000,000,000	Nil.

+ + =moderately large lesions.
+ + + =very large lesions.

TABLE 13.

Hen.	*Nat. Infect.*	*Test.*	*Result.*
106		(6—8 months later)	Nil.
126			? Comb.
162	Comb ...	Scarified comb	Nil.
207		1/100 dil. H strain rubbed in.	Nil.
246	Mouth ...	Also 1 c.c. 1/100 dil. H strain i.v.	Nil.
354			Nil.
10	Comb ...		Nil.
31			Nil.
103	Mouth ...		? Comb.
104			? Comb.
	Controls 2		Comb + + + Mouth + +

+ + =moderately large lesions.
+ + + =very large lesions.
Nil. =No lesions.
? =doubtful lesions.

TABLE 14.

Hen.	*1st Infections.*	*Test.*	*Result*
4	Eye, mouth, nose	Full strength same strain rubbed into comb and 1 c.c. i.v.	Nil.
12	Comb ...		Mouth + +
13	Mouth, nose, comb		Nil.
14	Comb ...		Nil.
15	Nose, mouth, eye		Nil.
19	? comb ...		Comb + + +
28	Comb ...		Nil.
34	Comb ...		Nil.
200	Comb ...		Nil.
500	Comb ...		Nil.
	Controls 2		Mouth, comb, nose + + +

+ + =moderately large lesions.
+ + + =very large lesions.
Nil. =No lesions.

TABLE 15.

Hen.	*1st Injection.*	*2nd Injection.*	*Result.*
1—10	L. strain	H. strain	No infection.
11	(Control)	,,	Mouth, comb + +
12	(Control)	,,	Wattle, comb + +

Nil. =No lesions.
+ + =Moderate sized lesions.

BACILLARY WHITE DIARRHŒA.

Bacillary White Diarrhœa of chicks is caused by *B. pullorum*, which can be isolated from the liver, heart blood and yoke sac of infected chicks. In one case we isolated it in pure culture from the lungs. Infection by mouth of chicks less than seven days old can easily be carried out (Table 17). Infection is also believed to be conveyed from the adult laying hen in diseased ova. We have isolated *B. pullorum* from apparently diseased ova on several occasions, but have not yet succeeded in obtaining the organism from the yokes of several dozen eggs laid by reacting hens; nor have we been able to isolate the causal agent from the yoke sac of any chick found dead in the shell or from any unfertile egg.

In several experiments we have been able to infect chicks with culture given by the mouth at all ages up to six days old, but not at eight or nine days or later. These experiments are to be repeated.

Attempts have been made to eliminate the carriers of "B.W.D." from flocks by carrying out agglutination tests with serum from all birds in the flock against *B. pullorum* and breeding only from the non-reactors. Good results have been reported from such a procedure. It was necessary to have many samples of blood sent from long distances by post, and many arrived contaminated and hæmolysed. We have got over this difficulty by the use of 5 per cent. boracic acid. 0·1 c.c. is placed in the blood collecting tube before being dispatched to the poultryman. The dilution of boric acid varies with the amount of blood drawn into the tube, from 1 per cent. to 0·02 per cent., neither of which concentration affects the suitability of the serum for the test.

It has been stated that the agglutination titre of reacting fowls varies according to the period of the year and whether the birds are in lay or not. We have tested weekly for twelve weeks the agglutination titre of sixteen birds. Though we found considerable variations from time to time, no obvious correlation between eggs laid per week and agglutination titre could be found.

The intradermic method of testing fowls, as described by Ward and Gallacher has been tried out and

TABLE 16.

Hen.	*1st Inoculation.*	*2nd Inoculation.*	*Interval.*	*Test.*	*Result.*
628	1 c.c. vaccine subcut.	1 c.c. vaccine subcut. 7 days later	2 weeks later	1/100 H i.v. and comb	Comb + +
629					Mouth + +
630			4 weeks later	1/100 H i.v. and comb	Comb +
631					Mouth +
632			6 weeks later	1/100 H i.v. and comb	Nil.
633					
Controls					
634	to 628 & 629	test only			Comb + + +
635	to 630 & 631				Mouth + +
636	to 632 & 633				

+ =slight lesions.
+ + =moderately large lesions.
+ + + =very large lesions.

results compared with those obtained by the agglutination test. Table 18 shows that of thirty-nine birds tested by both methods, sixteen gave positive results to both tests, seventeen were negative to both, three were doubtful to agglutination and positive to intradermic tests. One of these died and *B. pullorum* was isolated from the ovary. Two were doubtful to intradermic, but positive to agglutination tests, and one gave a positive agglutination and a negative intradermic test. Beaudette (*Journal of Immunology* Nov., 1923), has stated that the albumen of the egg of hens giving positive serum agglutination results, will also give a positive agglutination reaction. We think the so-called agglutination of the egg albumen is non-specific, for we have been able to demonstrate the same results by adding tap water, saline solution, etc. to the albumin instead of *B. pullorum* antigen. Furthermore, there is apparently no connection between the serum agglutination and the albumin agglutination tests.

TABLE 17.

Infection of chicks by B. pullorum given by mouth.

Dose.	*Result.*
1·0 c.c.	D 2 P.M.T.
0·1 c.c.	D 2 ,,
0·01 c.c.	D 3 ,,
0·001 c.c.	D15 ,,
0·0001 c.c.	D15 ,,
0·00001 c.c.	D 9 ,,

Day old chicks were used. Culture given by mouth.
D 2 =Died second day.
P.M.T. =B. pullorum recovered from tissues of chick showing diarrhœa during life.

TABLE 18.

Agglutination reaction.	*Intradermic reaction.*	*No. of Hens.*
+	+	16
−	−	17
±	+	3*
+	±	2
+	+	1

*One of these hens died: B. pullorum was isolated from the ovary.

+ =positive reaction.
− =negative ,,
± =doubtful ,,

TABLE 19.

Culture.	*Serum.*	*Result.*
0·1 c.c.	1·0 c.c. P	L
0·1 c.c.	0·5 c.c. P	L
0·25 c.c.	1·0 c.c. P	L
0·25 c.c.	0·5 c.c. P	D 3
0·1 c.c.	1·0 c.c. N	D 3
0·1 c.c.	0·5 c.c. N	D 3
0·25 c.c.	1·0 c.c. N	D 3
0·25 c.c.	1·0 c.c. N	D 3
0·1 c.c.	—	D 2
0·25 c.c.	—	D 2

P =Pullorum serum. N =Normal fowl serum.
Culture and serum inoculated same time, separately.
From the tissues of all dead chicks B. pullorum was obtained.

Experiments show that protection can be got by the use of an anti *B. pullorum* serum. We are investigating this point further and making supplies of anti-pullorum serum. Tables 19 and 20 show the results of two such experiments.

TABLE 20.

Culture.	*Serum.*	*Result.*
0·01 c.c.	0·5 c.c. P	D 3
0·01 c.c.	0·5 c.c. P	D 3
0·001 c.c.	0·5 c.c. P	L
0·001 c.c.	0·5 c.c. P	L
0·0001 c.c.	0·5 c.c. P	L
0·0001 c.c.	0·5 c.c. P	L
0·01 c.c.	0·5 c.c. N	D 3
0·001 c.c.	0·5 c.c. N	D 4
0·0001 c.c.	0·5 c.c. N	D 4
0·01 c.c.	—	D 2
0·001 c.c.	—	D 4
0·0001 c.c.	—	D 4

L =Lived. D 3 =Died 3rd day.
Serum given subcutaneously and culture by mouth at same time.

Blackleg and Braxy.

You will remember the description of the earlier work carried out here by Allen and Bosworth, described in the *Veterinary Journal*, September, 1924. These authors published tables showing the method of titration of *V. septique* toxin intravenously in mice, and the testing of the toxin against antitoxin and showed that guinea-pigs which had received an immunising mixture of *V. septique* toxin-antitoxin and *B. chauvæi* filtrate, later were immune and withstood lethal doses of *V. septique* or *B. chauvæi* culture. Since the publication of that paper we have slightly altered the method of preparation, with the object of reducing the local reaction, which is now very slight.

Some experiments in the field have been carried out and some are in progress now. Table 21 is the result of an experiment carried out in the North of England during the past winter, against braxy in sheep, each inoculated sheep having received two inoculations.

The protection conferred against braxy in the field seems to be satisfactory.

These experiments we owe entirely to Mr. Howie, M.R.C.V.S., Veterinary Advisor, Armstrong College, Newcastle, who arranged and supervised the whole of the field work and kept in contact throughout with the farmers concerned.

TABLE 21.

Sheep on Farms infected with Braxy: some inoculated with Blackleg Braxy prophylactic; approximately half sheep on each farm uninoculated.

Farm.	*Inoculated.*	*Inoc. dead.*	*%*	*Controls.*	*Controls dead.*	*%*
N	60	2	3·3	60	6	10
H	180	Nil.	—	120	7	5·8
H_2	20	Nil.	—	12	2	16·6
R	80	Nil.	—	80	14	17·5
B	70	Nil.	—	80	5	6·2
C	39	Nil.	—	12	6	50
L	100	Nil.	—	100	32	32
	549	2	0·37	464	72	15·5

Lamb Dysentery.

Lamb dysentery is a disease found affecting young lambs in the North of England and South of Scotland mainly, though it evidently is spreading Northwards and Southwards.

What appears to be a typical attack of the disease, with typical post-mortem picture, we have produced in several ways :—

(1) Feeding a mixture of *B. welchii* and *B. coli* (Table 22—note *B. coli* alone or *B. welchii* alone did not produce the condition); (6 occasions).

(2) *B. coli* injected intravenously followed in some hours by *B. welchii* per os (Table 23); (3 experiments).

(3) Intravenous injections of ground up ulcers from the intestine (Table 24); (4 experiments).

(4) Insertion of ulcers into the umbilicus (one experiment only).

We failed to produce the disease by feeding ground-up ulcers, organs and intestinal contents from infected lambs to healthy lambs (two experiments only).

Two methods of prevention have been carried out in the field (*a*) inoculation of pregnant ewes with antigens made from the organisms isolated from cases of the disease; and (*b*) injection of corresponding sera into the young lambs. Better results have been obtained from the former method (see Tables 25 and 26).

Much field experimentation on the large scale must yet be done, but the results obtained are most hopeful. All the farms in Table 25 were under constant observation by Mr. Paul, M.R.C.V.S., without whose unlimited keenness and personal generous help, such a result could not have been got. We visited all these farms with Mr. Paul and saw owners and shepherds, and we are satisfied that the "controls" were real controls, exposed to every traceable influence affecting the inoculated ewes.

Table 27 indicates the results of the use of anti-serum on the young lambs on various farms. Further work along these lines is also planned.

TABLE 22.

Lambs	*Culture by mouth.*	*Result.*
1	50 c.c. B. coli +50 c.c. B. welchii	D 2 P.M.T.
2	20 c.c. B. coli +20 c.c. B. welchii	D 3 ,,
3	100 c.c. B. coli	L
4	100 c.c. B. welchii	L
5	40 c.c. B. coli	L
6	40 c.c. B. welchii	L

L =Lived. D 2 =Died on 2nd day.
P.M.T. =Ulcers in the bowel of lambs which, during life, had shown diarrhœa or dysentery.

TABLE 23.

Lambs	B. Coli (Injected i.v.)	B. welchii (by mouth).	*Result.*
1	2 c.c.	60 c.c.	D 2 P.M.T.
2	2 c.c.	50 c.c.	D 3 ,,
3	2 c.c.	50 c.c.	D 3 ,,
4	2 c.c.	—	L
5	—	50 c.c.	L

L =Lived. D 2 =Died 2nd day.
P.M.T. =Ulcers in the bowel of lambs which, during life, had shown diarrhœa or dysentery.

TABLE 24.

Lambs	*Inoculated i.v.*	*Result.*
1	1·0 c.c. ground up ulcer ...	D 2 P.M.T.
2	0·1 c.c. ,, ,, ,, ...	D 3 ,,
3	0·5 c.c. ,, ,, ,, ...	D 1 ,,
4	1·0 c.c. ,, ,, ,, ...	D 2 ,,
5	2 c.c. mucous membrane scrapings normal lambs bowel	L

L =Lived. D 2 =Died 2nd day.
P.M.T. =Ulcers in bowel of lamb which, during life, had shown diarrhœa or dysentery.

TABLE 25.

Farms we visited: controls in same flocks with inoculated: many post-mortem examinations. Daily records kept.

Farm.	*Lambs born from inoculated ewes.*	*Lambs died.*	%	*Lambs born from non-inoculated ewes*	*Lambs died.*	%
A	240	4	1·66	400	80	20·00
B	120	5	4·17	110	39	35·45
C	52	0	0	685	140	20·44
D	102	3	2·94	432	134	31·02
	514	12	2·4	1627	393	24·1

Ewes on Farms A and B had two inoculations.
Ewes on Farms C and D had one inoculation.

TABLE 26.

Controls partly in adjoining fields. Figures not rigidly kept: few post-mortem examinations done.

Farm.	*Lambs born from inoculated ewes.*	*Lambs died.*	%	*Lambs born from non-inoculated ewes*	*Lambs died.*	%
E	197	14	7·11	540	128	23·7
F	110	2	1·82	200	25	12·5
	307	16	5·2	740	153	20·7

Ewes on Farm E had one inoculation.
Ewes on Farm F had two inoculations.

TABLE 27.

Farm.	*Lambs inoculated.*	*Lambs died.*	%	*Lambs not inoculated.*	*Lambs died.*	%
A	80	35	43·75	70	47	67·14
B	140	10	7·14	95	67	70·53
C	500	19	3·80	200	25	12·5
	720	64	8·9	365	139	38·8

Lambs inoculated once as soon after birth as possible.

Retention of the Placenta in the Mare and Cow.*

By W. A. Dickinson, M.R.C.V.S., Crowland, Lincs.

I have chosen this subject because it is one which often causes me a great deal of worry and anxiety. I refer to the condition in the cow, as the removal of the placenta in the mare presents little difficulty. Retention of the placenta in the cow is much more easily discussed than practiced, but discussion is of great value. As a profession we are isolated individually and it is only on these occasions that we can exchange views.

I shall first deal briefly with the condition in the mare. Here the placenta is diffuse, that is, it is composed of a large number of filiform papillæ, spread uniformly over the outer surface of the chorion. These papillæ fit into depressions in the lining membrane of the uterus, and they contain small blood vessels derived from the umbilical vessels. At the end of gestation, these vessels are obliterated and converted in fibrous tissue. The cause of retention in the mare is uterine inertia, and, or lack of the necessary changes in the blood vessels.

As the mare is so liable to septic infection, I do not think more than twelve hours should elapse before the cleansing is removed. Some recommend less, but I find twelve hours a safe time, and removal is generally easily accomplished. Of course, if it can be easily removed a little earlier, so much the better.

Concerning the length of time during which the membranes may be left, a recent case is of interest. I attended a foal on the day of its birth and on the next day, when it was discharged from the visiting list. Four days after the foal was born, an urgent message was received that the mare had not cleansed, and that the horsekeeper had forgotten to tell me. No placenta having been visible, and the mare perfectly normal and comfortable, I had, of course, not considered such a thing. On examination I found the placenta completely retained, the os dilated, temperature normal, and the mare feeding well. I removed it, syringed with normal saline, syphoned, swabbed out the excess of moisture and inserted a couple of pessaries. The mare progressed without any complication or further treatment. No doubt, had the placenta been exposed, infection would have taken place, but, on the other hand, it would not have been allowed to remain so long.

About the same time I was called to a mare which developed laminitis forty-eight hours after foaling. I found a small portion of placenta retained, the rest having been torn off. There was metritis present. These are two extreme cases which demonstrate the susceptibility of different animals to infection from retained placenta. With proper care for cleanliness and disinfection, in the average case of retention in the mare, no complication should arise. The procedure I adopt is thoroughly to wash the vulva and the region round it, smear my hands and arms freely first with carbolised oil, and then with sapolav, which I think is the most satisfactory lubricant up to date.

In removal, one is generally advised to push the hand between the placenta and the uterus, but it is a method I have never used. I put traction on the exposed portion, then, inserting my arm, find where the attachment commences. The pull on the placenta draws the uterine wall into folds, and holding the placenta by finger and thumb, where it joins one of these folds, with a squeezing motion, and running the hand forward at the same time, the cleansing is easily separated, with no danger to the uterus from the nails. This is carried out all round the attached placenta. No doubt many people do this, but I have never seen it described.

After removal is complete I inject the uterus with normal saline and syphon till clear, swab out any excess of fluid, and insert a couple of pessaries. Providing no injury has occurred during parturition, no further treatment is necessary as a rule, but occasionally the uterus does not contract properly and fluid soon accumulates, which must not be allowed to remain. By the above treatment, applied two or three times, this can generally be easily remedied.

The Cow.

How much more difficult and complicated, and objectionable in the majority of cases. Here, instead of the villi being diffused over the surface of the chorion, they are collected into groups to form the fœtal cotyledons, which fit over the maternal cotyledons, of which there are about eighty or more.

Retention is comparatively common in the cow. Fortunately, the membranes can be left longer in this animal, but the length of time during which they can be left with safety varies so much as to cause me a lot of anxiety. I find that the large, strong, and, might I term it, normal placenta, although sometimes it may be troublesome to remove, rarely causes danger to life. But many of them are so thin and membranous, and so tightly adherent, that it is impossible to remove them until they have practically decomposed, and they decompose very rapidly, during which time the uterus is in a disgusting state; cotyledons become necrotic, the os closes rapidly, and it is difficult to carry on treatment without causing injury to the cervix.

The complications are serious—metritis, metroperitonitis, septicæmia and vaginitis—and the sequelæ are loss of condition, debility, diminished milk yield, chronic metritis, sterility and sometimes death, and these are not all easy to avoid in many cases. It is quite impossible to fix a time for the removal of the placenta in the cow. It varies, in my experience, from soon after calving to a week or ten days. One must treat each case on its merits. Some are easily removed very early, but they would possibly have cleansed themselves if left. One can be guided only by the strength of the attachment, the progress of decomposition, and the condition of the uterus and the os.

Causes. Abortion, particularly contagious abortion, is a very common cause, and premature birth

*Presented to the Lincolnshire and District Division at Peterborough, on June 11th, 1925.

and uterine inertia. But there occur so many cases where the membranes are so thin and poorly developed and trouble arrives so quickly on retention, with or without interference, that I cannot help thinking that some pathological condition was present before parturition. This apart from contagious abortion, for I have many cases on farms where there is no abortion, and the cows concerned have calved at full time. I have long held this opinion, and the only writer to approach the subject, within my knowledge, was Mr. L. P. Pugh, in an article in the *Veterinary Record*, dated October 27th, 1923, under the heading of "Puerperal Fever." I have hoped to see a further article by the writer on the same subject, for the condition has considerable importance from an economic point of view.

The actual cause of the retention in the inflammatory conditions such as contagious abortion, puerperal fever, as described by Pugh, and probably also in sporadic abortion and premature birth, is, in my opinion, that the small blood vessels in the papillæ, instead of becoming obliterated at the close of parturition and converted into fibrous tissue, remain patent, and, in the inflamed states, engorged with blood, with uterine inertia as a contributory cause.

It is these cases which exercise all one's care and skill. One is called to such a case perhaps on the second or third day after calving. Already the state of the cleansing is very offensive, and the os is partly closed. On dilating it sufficiently to enter the uterus, the placenta—very thin and membranous—is tightly adherent, so tightly that it is impossible to remove it. Here lies the trouble. This type is almost always very tightly attached and decomposes very rapidly, although so thin and poorly developed. If one leaves it for a couple of days, as one must, the next visit reveals the os partly closed again, requiring considerable trouble to reopen it, the uterus half full of putrid material, and the placenta, of course, in a more disgusting state than before, but still firmly resisting any attempt at detachment, unless in shreds. One cannot go on dilating the os without causing the cervix to become inflamed and thickened, and to syphon off fluids injected into a uterus containing cleansing is difficult enough when the hand can be introduced as far as possible, and impossible if one cannot pass the os. An additional complication is vaginitis, the vagina becoming dry and its lumen narrowed.

If one adopts no treatment, excepting perhaps medicine and pessaries, the uterus may, and often does, become full of stinking fluid, with the os almost closed. Even if the latter does not close, the flaccid uterus has no power to expel its contents. By now, the cow is probably very ill, with a temperature of 103° or 104° Fahr. She feeds badly or not at all, and gives little or no milk. The termination, too often, is at least metritis and sterility and even death, and almost certainly loss of condition for a considerable time. This condition seems to be contagious. On farms previously free I have had several cases, one after the other, within a short period of time, and all troublesome; this on farms where there was no abortion, and the cows affected calved at the correct time.

Treatment. The actual removal of a placenta, when it is ready, requires no description. It is when to remove it and how to prepare it for removal that requires discussion.

Medicinally. I generally prescribe a cleansing drench containing ergot, and although it is difficult to prove, I do consider that, given as a routine immediately after calving, it does help, but is of little use given later. During treatment a combination of nux vomica, ammon. carb. and hyposulphite of soda is useful if necessary. To prepare the patient I adopt the same measures of cleanliness, etc., as in the mare, but I must say that it is an annoying complication to have a cow defæcating on the vulva and one's arm immediately after all is prepared, and to keep on doing it.

Uterine Injections. Injections of antiseptic fluids (personally I prefer normal saline) are very useful if the cow can expel them herself, or if they can be syphoned off, but cases such as I have described have little power of expulsion, and a uterus full of fluid and cleansing is difficult to syphon. Some consider it unnecessary to remove the fluid. I have given that an extensive trial and find it answers very well in the mild cases, the animal expelling most of it herself, but, like all methods of treatment, it is not very satisfactory in the difficult cases.

Pessaries. Previous to removal of the placenta, I have not much faith in pessaries, but if one can empty the uterus they are excellent. Swabbing out with wool and inserting pessaries is useful in the milder cases, but useless where there is much fluid, unless this can be removed.

Recently, I have used capsules of animal charcoal, which are reputed to have, and I believe do have, a definite effect in releasing the attachment of the placenta. I insert as far down as possible between the membranes and the uterine wall half a dozen capsules, containing about ℥vi. each, and have found that on the next visit removal is generally easy and decomposition seems to be retarded considerably. I have used them only for about three months and it is rather early to have any certain opinion yet, but I think the results are very promising. Personally, I use all these methods on different cases. Having removed the placenta I treat as in the mare.

I have not been able to treat this subject as thoroughly as I should wish, but I do think it is a subject on which further research is required. I have had many of this particular type of case during the last few years, and it seems to be increasing in my experience. It is a difficult subject. Many clients expect one to remove any cleansing immediately and without any difficulty, and when one has a long case, this attitude does not help one.

In spite of all one can read and learn, many cases occur which, although recovery, complete or partial, takes place, leave one dissatisfied with the existing

methods of treatment. I think that undoubtedly in many cases infection takes place during gestation. If it should be discovered that "puerperal fever," as described by Pugh, is due to a specific organism, it may be possible in the future to prevent it by vaccination. Otherwise the uterus is inaccessible for local treatment until after parturition. The most troublesome thing in the long cases is, in my experience, closure of the os. In my hands, ext. bellad. has not been of much assistance, and I have to rely on the gradual dilatation by hand, which, if repeated more than two or three times, causes trouble, however careful and patient one may be.

I have brought forward this favourite subject in the hopes of gaining some information, for I rarely treat a difficult case of retention in the cow and feel satisfied. In the mare, one can treat the case cleanly and comfortably, but the cow is, up to now, an objectionable and unsatisfactory subject to treat for retention of the placenta.

Discussion.

The President (Mr. H. C. Reeks, senr.): I think you will agree with me that Mr. Dickinson deserves our hearty thanks for bringing this subject before us in the very interesting and informative manner in which he has done to-day. I would like to make one or two remarks myself with regard to the removal of the placenta in the mare, and I particularly desire to refer to an article by Mr. C. Cunningham, of Slateford, Midlothian, which appeared in an issue of *The Veterinary Record*, in the year 1908, under the title "Removal of Placenta in the Mare: How best done." I think the thing he has to describe is perhaps worthy of wider recognition. In the course of the article the author says: "I do not recollect ever having read in books or journals, or heard in lectures or at private conversations, any very special reference made to it as a simple, easy means of placental removal. The little process I refer to is just this—leave the big bulk and big mass of the white or light-coloured placenta severely alone; go in search of the dark-coloured outer surface of the chorion and try by gentle traction on that membrane *by itself to effect the end in view.*"

The difficulty that one has, however, is in going to a case where there is none of the chorion showing, and a method I have already described is to utilise two sticks to draw upon such portion of the placenta as is exposed, exercising traction until the dark-coloured chorion commences to peep through the labiæ—then, with traction on the chorion only, the whole thing begins to peel. I used this method very successfully for a long time until I became too venturesome in insisting on removal at too early a stage. I was brought up sharply with a loss or two, and then remembered a remark made by the late Mr. Knowles: "Do not try too early." I think the placenta may be left in position twelve hours or even longer without danger to the patient.

Mr. Standley expressed the opinion that the paper was of great clinical interest, and stated that he entirely agreed with all that the essayist had said.

Mr. Poles: As regards the length of time the placenta should be left in the case of the mare, I have never left one for a longer period than twelve hours, but so far as the method of removal is concerned, I try and go inside and get hold of the horn if I possibly can; if you can do that, I generally find that it comes away more easily. In connection with the removal of the fluid from the uterus I always use an ordinary enema syringe and, after laving the womb, I reverse the pump and draw the fluid out again. Then I insert a saloform pessary. While the process of syringing and withdrawal of fluid is proceeding you have to keep your hand inserted, otherwise you will draw the end of the womb into the end of the nozzle.

Mr. Holmes: Is there no possibility, in a too early removal of the placenta in the mare, of injuring the uterus by removing a small portion of the organ? The question occurs to me in consequence of the report, which you will all have seen, of a similar case which happened where a medical man was concerned.

A Member: In the human being the placenta is always removed at birth—at least, I believe that is always the rule.

Mr. Standley: The reason why cases of retained placenta in the mare are so much more serious than in other animals is that the womb is, in so many instances, infected previous to the birth. I look upon the placenta in a mare as one might regard a fruit growing upon a tree. If you leave the latter till it is ripe you can lift it up and it will come away. I think the same thing is applicable to many cases of parturition which we cannot understand. In many cases you cannot so much as insert a hand without the animal dying; in others you can pull them about tremendously with no untoward consequences. I think the whole thing may be summed up in the presence or absence of infection in the womb before the birth. A little while ago one of our members nearly got himself into serious litigation through leaving fluid in the womb of a valuable mare after he had syringed her out, the result being disastrous.

Mr. Lang: I wish to join with others in thanking Mr. Dickinson for his paper, which refers to a subject which, of course, is a good deal of trouble to us all. He refers to uterine inertia as a frequent cause of retention of the fœtal membranes. For the last two years I have made a practice of giving, at every case of difficult parturition, a dose of my old friend, sodium chloride, and I may say that in only one instance did the placenta not come away very quickly. I can look back some years and I can remember that the most intractible cases of retained placenta were those following difficult parturition, but that seems to be a thing of the past. As regards the time of removal from the mare, in some cases infection comes on rapidly, and in others it is considerably delayed. One of my cases went for two days and that of a friend for three, without injury, and in both cases the mares were receiving saline solution by the stomach tube.

I rarely, if ever, take away the placenta from a cow. I inject saline solution and syphon it away, and it is worthy of note that salt has a preserving action in a remarkable degree, and, even days afterwards, when you do exercise traction the membrane will come away practically undecomposed. Williams looks upon retained placenta, sterility, calves dying at birth, and white scour as links in one great chain. He thinks that we have many other bacteria capable of causing abortion besides *B. abortus Bang*. This subject is closely associated with sterility generally. One of my clients asked me if I knew anything about sterility, as he had a number of cows which he could not get in calf. I did not at that time, though I have become very interested in the question since, and I asked Major Heatley's advice. Three were treated for endo-metritis and recovered their ability to breed. Major Heatley's practice was to administer the treatment three times a fortnight. The subject was one which merited the most careful and minute study, for it was of ever-growing importance at the present time. Major Heatley had remarked that that class of case constituted more than one-third of his practice. What with sterility, tuberculosis and meat inspection, I do not think that the prospects before the profession were ever brighter than they are now. (Laughter.) All the instruments used by Major Heatley in cases observed by the speaker were forceps and two catheters of different sizes, the injection being Lugol's solution.

Mr. STANDLEY: I have practised this for some time, and I have had very bad results from it.

Mr. LANG: When do you get your cases?' The whole point is to get them in the earlier stages, then you will meet with success.

Mr. STANDLEY: The cow does not come on until three weeks after calving, and how can you tell whether she is going to be sterile within five weeks or so? Certainly if you try treating cases several months gone you do not meet with much success.

Mr. LANG: Major Heatley told me that in Denmark they think so much of it that the communal veterinary surgeons do every cow before she goes to the bull.

Mr. LOCKWOOD: I should like to join with the other gentlemen who have discussed Mr. Dickinson's paper in my thanks to him for bringing this important subject forward. In these days, when Day, Son and Hewitt, and similar firms, get such a hold on our clients, we drop in for this sort of hard labour, and the "quack" people get the easy work. (Laughter and applause.) I should like to ask what Mr. Dickinson would consider to be a safe time to leave the after-birth in a cow that had aborted, and also what would be a reasonable time to allow it to remain in a cow calved up to full time which had not cleansed properly. I was called to the case of a mare which had gone four days without untoward results. Just to digress on to this topic of the treatment for sterility, Mr. Standley's comments are very pregnant, in my opinion; moreover, I feel that when one is dealing with every-day animals the attendant expense would not be justified, for the clients would not stand it. The treatment is only practicable where you are dealing with pedigree stock.

Mr. BINDLOSS, after thanking the essayist, said: There is one point that has not been remarked upon, and that is the number of times in which you get retention of placenta in a cow that has had a normal calving. You generally get it in a cow that has calved a few days before her full time. I do not swab them out; I generally put in a catheter and douche with a carbolic preparation. I should be very nervous about leaving the placenta in a mare for more than twelve hours, for if you do you get a rise of temperature and a haggard expression. I should hold myself to blame if anything went wrong. In the cow I leave it for a few days, and in these cases I use mugwort very successfully—I think it is a useful drug for the purpose.

Mr. WARDROP: I think we are sometimes to blame ourselves in cases of septic metritis in using too much force in taking away the placenta before the womb is ready, thereby creating a raw surface. This I believe to be a frequent cause of the condition.

Mr. HOLMES expressed the opinion that sterility was often due to an acid condition of the vaginal mucous membrane and that once that was overcome the cow very often became pregnant.

Mr. LANG spoke to having a case of a cow that refused to hold to the bull three or four times last year, and he used ℥iv. sod. bicarb. with success. Those soda salts had an extraordinarily solvent action upon mucous.

THE REPLY.

Mr. DICKINSON: With reference to the time of removal in the mare, I mentioned that I did not think there was any difficulty about it because, as a rule, in twelve hours the placenta is nearly always easily removed and without any danger. I do not think one meets with many cases in which one cannot remove it easily and safely within that time. As regards the removal, it is the chorion that has to be removed and Mr. Poles talked about getting hold of the horn. I find that, as a rule, until you have got a certain amount removed you cannot reach the end of the horn, and that the method of running your hand along the placenta separates it very easily. I never leave fluid in the womb of the mare. I always syphon it away, as I do in the case of the cow if it is possible to do so.

I always protect the end of the tube with the hand when I am having the fluid pumped in, because the force of the flow is often considerable and might do damage. Replying to Mr. Lang, I, too, do not have much trouble after difficult parturition—most of the animals I attend cleanse themselves and I have usually found the condition to occur after easy parturition. I also, never remove a placenta before it is ready. I think it is the greatest mistake in the world to use force. But in some cases you are "between the devil and deep sea," for if you leave it you have to face the difficulty of the closing os, which is one of the biggest problems arising from the condition. The os seems to close very quickly if you

have a rapidly decomposing placenta. If there is any placenta in the womb you cannot syphon properly unless you can get your hand in to guard the end of the tube. In reply to Mr. Lockwood: As regards the time for removing the placenta in a cow after abortion, and in a full time cow, in either case you have to wait till it is ready, and you must not remove it before, otherwise you cause trouble. I should say that twelve hours in the mare is the ideal time for its removal. I myself dare not leave it longer, and the case to which I referred in my paper was one to which I was not called earlier, and it astonished me. In answer to Mr. Bindloss, I may say that I have not had much success with medicine, so far as I could prove, except that given as a routine measure immediately after calving. To Mr. Wardrop I can only say that I entirely agree that the use of force in placental removal is dangerous, and repeat that you have to take it away when it comes easily. I understood Mr. Holmes to say that a great deal of the trouble of sterility rises from an acid condition of the vaginal mucous membrane, but I think most of it comes from the uterus. I hoped to hear some comment upon the possibility of retention of the placenta in the cow being the result of an infectious condition which affects the animal during gestation. As I have stated, the most difficult factor in regard to removal is the os, for if you have to dilate it several times the parts soon become inflamed. I have come to the conclusion that the only thing to do under those conditions is to get away as much of it as you can.

R.A.V.C. Annual Dinner.

The following is a list of officers present at the above Dinner on Friday, the 19th June, 1925, at the Hotel Cecil:—

Major-General W. Dunlop Smith, C.B., C.M.G., D.S.O., Presiding.

Major-Generals.—Sir Layton J. Blenkinsop, K.C.B., D.S.O., Colonel Commandant, Sir Frederick Smith, K.C.M.G., C.B., Sir John Moore, K.C.M.G., C.B.

Colonels.—H. T. Sawyer, C.B., D.S.O., G. M. Williams, C.B., C.M.G., F. W. Wilson, C.M.G., A. G. Todd, C.B.E., D.S.O.

Lieutenant-Colonels.—J. J. Aitken, C.M.G., D.S.O., O.B.E., W. B. Edwards, W. A. McDougall, D.S.O., O.B.E., F. C. Stratton, J. W. Rainey, C.B.E., E.P. Argyle, D.S.O., H. C. Dibben, T. E. Burridge, W. H. Walker, D.S.O., O.B.E.

Majors.—J. O. Andrews, D.S.O., A. B. Bowhay. O.B.E., H. E. Gibbs, D.S.O., R. A. Gooderidge, O.B.E., E. Hearne, O.B.E., J. R. Hodgkins, D.S.O., H. J. Holmes, D.S.O., J. R. Roche-Kelly, H. Kirby, D.S.O., A. S. Lawrie, G.B.C., Rees-Mogg, O.B.E., J. S. Nimmo, D.S.O., S. F. G. Pallin, D.S.O., W. N. Rowston, W. E. Schofield, O.B.E., J. R. Steevenson, D.S.O., L. M. Verney, D.S.O., H. Greenfield, O.B.E., V. C. Leckie, D.S.O., T. Lishman, F. T. G. Hobday, C.M.G., F.R.S.E., F.R.C.V.S., P. J. Simpson, D.S.O., J. A. Connell, P. W. Dayer-Smith, O.B.E., J. Adamson, M.C., W. Ascott, O.B.E., C. E. Neill, H. Peele, H. C. Jagger, O.B.E., A. Robb, F. W. Pawlett, J. S. Bowden, A. F. Castle, A Spreull, D.S.O., T. E. Campey, M.B.E.

(Continued at foot of next column)

The Veterinary Record.

11th July, 1925.

PRESIDENTS OF THE R.C.V.S. PAST AND PRESENT.

At the first Council meeting of the new session of the Royal College of Veterinary Surgeons, held on Friday, July 3rd, Mr. J. Clarkson was unanimously chosen as President for the ensuing year. Mr. Clarkson qualified in 1887, in which year he was first Fitz Wygram prizeman, and was elected to the Council in 1912. Two years later he was made Vice-President, an office which he again held last year. That he has now been given the highest honour that is in the hands of the Council to bestow will bring pleasure and satisfaction to every member of the profession with whom he has come in contact, and will especially gratify his many friends and admirers. A quiet and gentle man by nature, he has the knack of saying pleasant words while at the same time losing none of that directness of speech which is so characteristic of the county of broad acres. Perhaps he is best known in his connection with the Yorkshire Veterinary Medical Association, which is now a Division of the "National." For about twenty years he held the post of honorary secretary and, as such, endeared himself to all the members who, on more than one occasion, have made handsome presentations to him in order to record their appreciation of his work on their behalf. Last year he was elected President of the Division, and one has only to attend a meeting in Yorkshire to see at once in what respect and affection he is held. Mr. Clarkson is single-handed in his practice at Leeds, and is an extremely busy man, but nevertheless he is an apt

(Continued from previous column.)

Captains.—G. Barnett, M.C., B. R. Body, W. D. Connochie, C. Davenport, O.B.E., J. Going, F. Hogg, P. Howard, W. B. Howe, H. J. Hughes, M.B.E., G. A. Kelly, G. Lloyd, D.S.O., W. St. J. F. Macartney, M. A. Murphy, B. W. J. Nicholas, E. S. W. Peatt, O.B.E., J. J. Plunkett, O.B.E., K. S. Simpson, S. L. Slocock, M.C., J. Southall, P. S. Sparling, C. H. S. Townsend, F. J. Weir, P. F. Woodland, J. H. M. White, C. Holland, M.C., W. E. Barry, J. F. Ives, M.C., C. Budd, M.B.E.

Lieutenants.—E. S. O'Kelly, A. J. Warburton.

The following officers were guests.—Lieutenant-Colonel H. A. Reid, O.B.E., New Zealand Army Veterinary Service. Major C. Mackie, Canadian Army Veterinary Service.

example of the busy man who always manages to find time to do more, if the word "more" means work for the benefit of fellow practitioners. The profession will unite in congratulating him and wishing him a most successful and happy year of office. A word must now be said in appreciation of the very excellent services which the retiring President, Mr. S. H. Slocock, has rendered. He has been untiring in carrying out all his presidential duties, and has occupied the chair with dignity, both to himself and his profession. If popularity is an indication of success, then Mr. Slocock is wonderfully successful, for there is no one who knows him who does not remark on his geniality and kind heartedness. The latter quality is well shown by him as Chairman of the Victoria Veterinary Benevolent Fund, and the former was realised by many who had not previously known him when he paid visits to the Midland, Mid-West, and Lancashire Divisions in his official capacity as President of the Royal College. These visits were much appreciated, and have done good in bringing the Royal College into a more personal contact with the provinces. The culmination of a successful year was the Annual Dinner, which was held on the last day of Mr. Slocock's presidency. It was well attended and there was a brilliant array of distinguished guests; the speeches (if rather long) were good, and the arrangements excellent. We voice the wishes of the profession when we offer Mr. Slocock our sincere and grateful thanks.

Reports from South America state that sheep raisers in the province of Chubut in Southern Argentina, are being forced to destroy sheep by the thousand, as the grass on the pampas is insufficient to feed the immense flocks through the dry summer. The territory is approximately 800 miles wide and reaches from the Atlantic to the Andes. It is one of the greatest wool-producing districts in Argentina, but it has no packing house nor railroads connecting any of the districts with refrigerating plants. It is estimated that there are 2,000,000 sheep there now. For sheared animals on the hoof the price has been less than $1 each this season, because the consuming market is limited to the oilfields and small towns on the coast. This leaves the sheep men the alternative of destroying part of the flocks to save the risk of seeing all starve.

The National Poultry Parliament and the National Poultry Council will hold their summer meeting at Harrogate, from July 13th to 17th. An interesting programme of lectures, discussions and excursions has been arranged, and resolutions on various matters of importance to the poultry industry will be submitted and considered.

CLINICAL AND CASE REPORTS.

Urinal Calculcus in the Bitch.

By C. R. A. Powell, M.R.C.V.S.

Subject.—A five years old cross-bred Fox Terrier bitch.

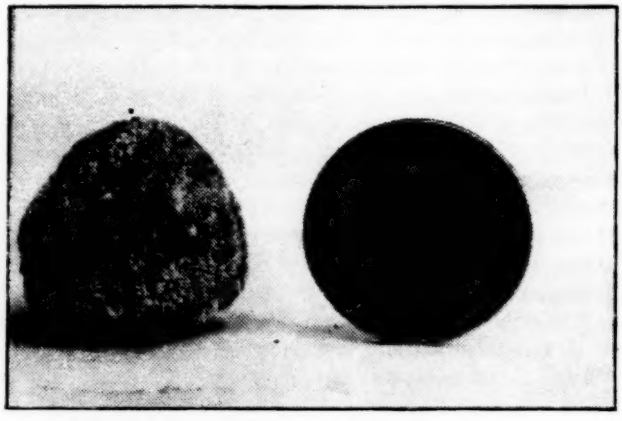
History.—Had been straining for three or four months during urination. When first seen on April 21st, the bitch was noticed to strain for 10 minutes or more at a time, and the urine was passed drop by drop.

Diagnosis.—Calculus in the bladder. This was easily felt through the abdominal wall and was found to be freely movable in the bladder.

Operation.—The patient was anaesthetised with a mixture of chloroform three parts and ether two parts, Hobday's inhaler being used. The bitch was now placed in the dorsal position, the site of the operation cleansed, etc., and the whole of the abdomen and thorax covered with a piece of sterilised linen, out of which had been cut a small oblong sufficient to operate through. The abdomen was opened and the bladder exposed. This was incised for slightly over an inch in length and the calculus removed. The wound was sutured with very thin silk. The sutures used were similar to those used in suturing skin, except that the suture material did not pass into the bladder cavity. By this means the opposing edges were drawn together in anticipation of healing by immediate union. No internal antiseptics were used. After suturing the bladder, it was lightly mopped externally with solution of adrenalin chloride (1-1000) to allay hæmorrhage. The peritoneum and muscle were then sutured and finally the skin. A supporting bandage was put on. The bitch made an uninterrupted recovery. The skin sutures were removed in six days' time, and she was returned to her owner the following week, urination then being quite normal.

I have two reasons for recording the case.

(1) The unusual size of the calculus, which was as large as a small walnut. This will be seen from the accompanying photograph. A halfpenny has been placed beside it for purposes of comparison.



(2) As I was putting the last of the four sutures into the bladder, the bitch, for some unknown reason, was violently sick, so much so, in fact, that most of the intestines were forced out through the abdominal opening. She was completely anæsthetised at this stage, and it was only the nearness of a bottle of liq. ammon. fort. which saved her life.

This I believe is unusual, and I wonder if anyone can enlighten me as to the cause.

An Atypical Case of Rabies in a Dog.

By V. P. GOKHALE, G.B.V.C., Veterinary Inspector, Perak, F.M.S.

I am recording this case with a view of bringing to the notice of the veterinary profession that an atypical case even of rabies does occasionally occur, and one has to be extremely careful about such a case when there is a history that the sick dog was either bitten by a rabid dog or was in contact with it.

The following are the history and symptoms of the case :—

A dog about three years old, belonging to a European officer, was imported from an other Federated Malay State, on 7th March, 1925. Up to the 10th of the same month nothing peculiar was seen, but from the 11th to 14th he ate only all the meat that was mixed up with rice, and was lively. On the 15th he was found very sick and did not take anything on that day and the following day. On the night of the 16th the owner saw it getting fits when he tried to feed him forcibly, but a few hours later it ate a large bowl of rice. Again, according to the owner's statement, on the morning of the 17th the dog did not eat his own food, but ate all the other dogs' and cats' food, and appeared to its owner much better.

The dog was examined by me on the morning of the 16th as the owner feared that it was a case of rabies. Why the owner suspected this is still a mystery, as the dog never attempted to bite any person or dog. When I first saw it, I noticed a rise of temperature. It was off feed, dull, and there were two vesicles under the belly, like those of distemper, and as it seemed very quiet and there was nothing peculiar about his look, I thought it to be a case of distemper. On the following day, a report having been received from the G.V.S. of the place of its importation that it was recently in contact with a rabid dog, it was kept under strict observation at the quarantine kennels from the same evening. The owner led it to the kennels and it did not appear to me unwell. There was no history of its having been bitten by a dog in its former place. From the date of admission up to the 22nd it took only the cooked meat that was mixed up with rice, and also drank water that was placed before it. During this period it never appeared lively, but was always quiet, never barked nor growled, and never attempted to bite the attendant. There was no dribbling of saliva, no dropping of the lower jaw, nor any sign of paralysis. It was gradually losing condition. The only curious symptom it exhibited from the first was fits of short duration, appearing while taking food or when led about. On the morning of the 23rd it was totally off feed and was seen shivering, which was attributed to wet weather and wet flooring. Even on this date, when it was taken out of the kennels for examination it showed no paralysis of the jaw or hind quarters. On the 24th it was lying prostrate and died on the morning of the 25th. The body was emaciated. *Post-mortem* examination revealed sero-fibrinous pleurisy, and death was attributed to this. The lungs were normal. The stomach contained no food, but a good deal of bile-coloured fluid. The gastric mucous membrane appeared normal. Liver was slightly congested. No worms were found in heart cavities.

The brain was forwarded to the Government Pathologist, who found negri bodies present.

The G.V.S. (Mr. P. G. Short, M.R.C.V.S.) reported to the Government that " during the time it was under observation it showed no signs of rabies."

The special features of this case are :—

(1) Unusually long duration of illness.

(2) Absence of any classical symptoms or signs.

(3) No total refusal of food or water practically up to the last stage.

(4) No dropping of the lower jaw or any kind of paralysis, although the case was of a dumb type.

I have dealt with a large number of cases of rabies in dogs and one in a cat during several outbreaks of rabies in Malaya, but I do not remember to have come across such an atypical case as described above.

A rabid cat seen by me was sitting on the road side. It was constantly mewing and was profusely salivating, and the saliva was of a ropy nature. It became angry when approached, but was unable to attack owing to weakness. Pupils were greatly dilated. It was in an emaciated condition. On *post-mortem* examination the stomach was found empty and the mucous membrane was normal. Negri bodies were found in the brain by the Government Pathologist.

Dr. Daniels (late Director of Institute for Medical Research, F.M.S.) had stated about 18 years ago that he had seen atypical cases of " street " rabies in dogs and also found that the incubation period in rabbits inoculated with " street " virus was unusually long in Malaya. For further confirmation of these findings I am quoting from the *Bulletin of the Institute for Medical Research, F.M.S.*, No. 1 of 1925, written by Dr. Kingsbury, the Government Pathologist, and Major Symonds, the G.V.S., Selangor.

" Rabies in Malaya sometimes appears in an atypical form " (page 1).

" In Malaya both forms of rabies occur, but the paralytic is the commoner. Gradations between the two types are often seen and occasionally the disease gives rise to such atypical symptoms that diagnosis is difficult. These cases approximate to the dumb form and positive laboratory findings leave no doubt as to their etiology. The irritable period is frequently so short that it escapes observation, and the dog is only noticed to be ill in the later stages of the disease " (page 10).

Incubation Period in Dogs.—"There is great variation in the period of incubation of the natural infection. The shortest time of 14 days, recorded in this country, occurred in a puppy which was severely bitten on the head by its rabid mother, and in other cases where a reliable history has been obtainable the incubation period has usually varied between two and five months" (page 9).

Treatment of Soft Warts in Cattle.

By V. P. Gokhale, G.B.V.C., Veterinary Inspector, Perak, F.M.S.

Occasionally one comes across cases in which the whole body, particularly the face, becomes studded with soft warts which are about the size of a pea. When plentiful on the face they look ugly, but do not seem to cause any inconvenience to the animal.

Treatment.—Application of copper sulphate solution, 1 in 8, with a small camel-hair brush to the warts, once daily, will cause them to shrink and disappear in a few days time. If they are of large size they should be dissected out and the $CuSO_4$ sol. be applied over the raw surface for a few days, so that they may not reappear.

A medical practitioner had recommended application of $CuSO_4$ sol. of the strength 1—10 followed by application of table salt. The table salt does not stick so as to produce any action and its use does not appear to be essential, in cattle practice at least, and, furthermore, the strength of the sol. (1—10) seems to be rather weak, as it takes a longer time to cure.

On the other hand a sol. of 1—8 strength not only is quicker in action but does not seem to produce any bad effects at the seat of its application.

A Fœtal Deformity.

By H. W. Billinghurst, M.R.C.V.S., Alresford.

A client recently brought to me the body of a newborn lamb, which appeared to have, at the base of the neck above the sternum, a dark red tumour of conical shape, about one inch long by an inch and a half broad at the base.

The skin adhered to it tightly, but there was no wool for about an eighth of an inch round the growth.

On opening the carcass, this was found to be the ventricular portion of the heart, the auricles being inside the chest cavity, surrounded by a small pericardium, which merged into the pleura.

The auricles appeared to be normal, but the ventricle had only one cavity; the missing one, which seemed to be the right, being represented by a sinuous depression in the muscle about half an inch deep and as wide as the end of an ordinary cedar pencil.

The lungs were partially inflated, but the shepherd could not say whether the animal had had a separate existence.

The Diseases of Animals Acts Handbook.

The printed and bound handbook relating to the above acts has been out of date for some years owing to new legislation and orders.

The loose inset form has now become extremely unwieldy from the fact that when economies were instituted the issue of insets was suspended, and the new matter had to be inserted in the form of the ordinary foolscap sized printed orders. The result is that a complete handbook now contains many of the old insets, and folded new acts and orders. Many of the latter vary considerably in size.

The Ministry of Agriculture and Fisheries has recently notified Local Authorities that the re-issue of the handbook is under consideration. The question of cost appears to be an important factor in determining whether, or in what form, it will appear. With the recent experience of the cost to the country of the widespread outbreak of foot-and-mouth disease, one would have thought that an up-to-date handbook, for all those who have to administer these acts during the first few hours of a threatened invasion, would have been issued at the earliest opportunity, as an important national necessity. It is of little use saving a few hundreds of pounds on the issue of a book if there is risk of losing millions in stamping out a disease which may spread through ignorance of procedure.

When a municipal authority applies to Parliament for fresh powers, instructions have been issued for the authority to consolidate all its existing legislation. Further additions to the Diseases of Animals Acts are now under consideration. If it is too much to expect a consolidation of the acts themselves, it is to be hoped that some attempt will be made to make the orders as reasonably uncomplicated, to the lay mind, as can be expected in a legal document.

It is difficult to particularise, but the orders relating to foot-and-mouth disease may be taken as an example. From the handbook it appears that there are at least nine* orders relating to this disease: (1) The Foot-and-mouth Disease Order of 1895 is the principal one, but the rules for an infected place are altered by (2) The Foot-and-mouth Disease (Amendment) Order of 1924, and articles 23 and 24 are revoked by (3) The Diseases of Animals (Arbitration) Order of 1924, which, although only printed on a slip, also affects four other important orders not related to the disease now under consideration. Then comes (4) The Foot-and-mouth Disease (Emer-

* Whilst this note has been awaiting publication, two further orders relating to this disease have been issued: one, the Foot-and-Mouth Disease (Amendment) Order of 1925, dated 29th June, 1925, and the other the Foot-and-Mouth Disease (Amendment) Order of 1925, No. 2, dated 1st July, 1925. That is to say, within three days the number of orders governing this disease has been raised from nine to eleven. The former modifies Articles 12, 13, 17 and 30, and the latter Article 3 of the principal Order).

gency) restrictions Order of 1925, followed by (5) The Foot-and-mouth Disease (Change of Occupation) Order of 1922; (6) The Foot-and-mouth Disease (Infected Areas) Order of 1924, No. 164; and (7) The Foot-and-mouth Disease (Disinfection of Vehicles) Order of 1924. The method of disinfection of premises is laid down in (8) The Diseases of Animals (Disinfection) Order of 1906, and if one has to pass accounts of veterinary practitioners for reporting the existence of the disease, the assistance of (9) The Animals (Notification of Disease) Order of 1919 is necessary. It can hardly be argued that recent experience demands such a multiplicity of orders, because the disease has been under official notice for over forty years, and slaughtering out was then in vogue. The Swine Fever Orders are many and complicated, and there are several other groups such as, for instance, those orders relating to transit, sheep scab and rabies. The Anthrax Order of 1910 and the Glanders or Farcy Order of 1920 are single self-contained orders, which fulfil their purposes with a minimum amount of friction to officials and owners of animals. It is fully realised that there must be new orders from time to time, but at present many of them seem to beget others so quickly that one is led to wish that there might have been a little more foresight in their production. It would be interesting to know what percentage of handbooks in the possession of all inspectors, whether in the central or local authority, are at this moment in perfect order. Apart from this, the owner of animals has a right to see for himself in print and in an easily obtained form the restrictions placed by his Government on his industry.

For official reasons, therefore, a new handbook of revised and consolidated orders is an urgent and pressing necessity. In addition, the status of the work would be improved in the eyes of the public, the medical, and the legal professions, and our teachers responsible for the subject of epizootiology would have something in a compact and up-to-date form to which to refer their students.

The Parliamentary Medical Committee met recently to consider a report from five of its members who recently visited the Spahlinger establishment at Geneva. The report commented favourably on what the visitors had seen and suggested that it might be possible to raise £100,000 in this country by means of a public campaign to assist the movement. The committee passed the following resolution:—

"That the Parliamentary Medical Committee has received with much interest the account of the visit to the Spahlinger establishment which the five members of the committee have drawn up, not as a delegation from the committee, but as private individuals. The committee are of opinion that a *prima facie* case has geen made out for further investigation, but the committee resolve that they cannot, as a corporate body, take any action in the matter."

Milk Fever.

"Milk fever or 'post-partum paresis' in cows is one of those conditions which illustrate the point that the discovery of a successful empirical treatment may mislead or, worse still, kill real scientific interest in the ætiology of the disease. In 1897 Schmidt discovered that intra-mammary injection of potassium iodide was effective in curing milk fever. On the new treatment the mortality fell from about 50 per cent. to 20 per cent. and even less. Further investigation showed that the injection of many different fluids produced good results, and now mere intra-mammary insufflation is employed. There have been many hypotheses to explain this striking effect, but most of them have been very crude. In the *Veterinary Record* of March 21st, 1925, however, Prof. H. Dryerre and Prof. J. R. Greig, of Edinburgh, put forward an interesting theory. In the first place they combat Pugh's suggestion that the condition is essentially a ketosis which predisposes to a botulismus infection. They, on the other hand, hold that the disease is due to a parathyroid deficiency. This is probably so slight as to manifest itself only during the strain of pregnancy and parturition. Toxins such as guanidin then accumulate, and further, calcium metabolism is upset. At this point the animal is in a state of very unstable equilibrium, and a small amount of adrenalin liberated into the blood as a result of mild excitement is sufficient to precipitate a form of tetanic convulsions. For it has been shown by Guleke that a small dose of adrenalin will hasten the onset of tetany in an animal which has had its parathyroids removed. If, however, a large amount of adrenalin is liberated, the oxidation of the toxins is accelerated, the calcium loss is checked, and the blood pressure is raised. This, the authors suggest, is the reflex effect produced by the powerful afferent stimuli induced by intra-mammary insufflation. In this connection it is interesting to note that cows which have an easy labour are generally those which may later develop milk fever, while those which experience a difficult labour seem to be relatively protected. In the latter case a large dose of adrenalin is presumably liberated into the blood-stream, while in the former only a small sensitising dose is produced. In view of this explanation, however, it seems strange that, while intra-mammary insufflation is sometimes inadequate to effect a cure, it is not more often just sufficient to cause a severe exacerbation. If, as the authors point out, any sympatheticotonia which exists in the condition is only relative and the supply of adrenalin is always low, then the injection of adrenalin suggests itself. We are assured that in the one case recorded in which this was done the result was encouraging. Whatever the ultimate fate of their theory these workers have at least succeeded in bringing the problem into relation with modern physiological conceptions. It is possible, too, that by this line of attack new light may be thrown not only on milk fever, but on eclampsia and similar conditions."—*The Lancet.*

DIVISIONAL REPORTS.

Lincolnshire and District Division.

MEETING AT PETERBOROUGH.

A paper which was of much practical interest to every member present, which was read by Mr. W. A. Dickinson on the subject of "Retained Placenta," contributed largely to the success of a meeting of this Division which was held at the Angel Hotel, Peterborough, on June 11th, 1925. Mr. H. Caulton Reeks, senr., occupied the chair, and despite the scorching heat, which rendered attendance at the meeting from a distance a severe test of loyalty, a representative attendance was secured, though much regret was expressed at the absence, through the sustaining of an injury to the leg from a kick from a horse on the previous day, of Mr. F. L. Gooch.

Those present, in addition to the President, were Messrs. Bindloss, Dickinson, Holmes, Lang, Lockwood, Poles, Standley and Wardrop, together with the Hon. Secretary, Mr. H. C. Reeks, junr. Messrs. J. Caldwell, T. Knowles and C. W. Townsend, intimated regret at their inability to attend.

The *minutes* of the previous meeting, which had been published in the *Record*, were taken as read and were signed as correct.

The PRESIDENT: My first business is to express to you my sincere thanks for the honour you have paid me of electing me as your President. I am not going to inflict upon you a Presidential Address, as we have a considerable amount of interesting business before us this afternoon, but I cannot let the occasion pass without assuring you of my appreciation of the confidence you have placed in me by electing me to the Presidential Chair.

CORRESPONDENCE.

(1) From F. Bullock, informing the officers of the Division that a fund had been started with the object of securing the adequate commemoration of the services rendered to the profession by the late Frank Walls Garnett and asking the President and Secretary to accept office as members of the Memorial Fund Committee. A statement in summary of Mr. Garnett's activities on behalf of the profession was enclosed.

The PRESIDENT: You have all received copies of the statement, and from it you will be convinced, even if you did not know Mr. Garnett personally, that the object of the Fund is a very worthy one. I had the pleasure of knowing Mr. Garnett very intimately and he certainly was a man who set an example to every one else in his profession. He was, indeed, looked up to as an example in his native place and he was a means of getting us looked up to more than ever before as a profession. I shall be very pleased to subscribe myself and the Secretary can act as treasurer for anything which we can collect here. I think it will have to be a personal contribution from the members.

The opinion was expressed that the Division should follow the example of others in subscribing as a body to the Fund, in addition to what might be subscribed individually and it was eventually agreed that the sum of £2 2s. be sent as a donation to the Fund from the Society.

(2) From the General Secretary of the N.V.M.A., enclosing (*a*) a memorandum which had been sent to members of Parliament by the Association on the subject of the desirability for the re-introduction of the Tuberculosis Order of 1914, or of a measure on similar lines, with a covering letter, and (*b*) a circular letter which had been sent to Local Authorities from the Association pointing out that these bodies were empowered to appoint veterinary surgeons as inspectors under the new Meat Regulations, and briefly stating the case for the adoption of this course by the Authority.

The PRESIDENT pointed out that they, as an Association, had forwarded a resolution to the parent body urging the re-introduction of the Tuberculosis Order. It only remained for them, therefore, to acknowledge the receipt of the communications relative thereto, expressing agreement with their terms. Some discussion was aroused by the communication *re* the new Meat Regulations. Mr. POLES informed the meeting that a medical practitioner had secured an appointment under the Order at Whittlesea.

The PRESIDENT remarked that he was quite convinced that, if a veterinary surgeon was going to carry out the work conscientiously, he should devote his whole time to it. He thought that the question which interested them there was whether they were well advised in refusing to do it on account of the salary, knowing that they could not do it properly as a part-time occupation, or whether they would be serving their interests, and that of the community, better by accepting these appointments and looking upon them as a starting point.

Mr. HOLMES was certain that authorities would not appoint inspectors at a big salary, and the matter for them to decide was whether they thought it worth while to start at a low salary. The difficulty was that the practising veterinary surgeon had to attend at certain times.

Mr. LANG asked whether it was laid down that every carcass had to be inspected, and received the reply that the inspection was, in practice, confined to abnormal carcasses and that the inspector could attend at any time so long as it was within the stated hours of slaughter, due notice of which had been given.

(3) A further letter from the Secretary of the "National," enclosing a scale of fees agreed upon by the Association as the minimum fees which should be paid by Local Authorities for work under the Diseases of Animals Acts. The covering letter stated that the scale was for the information of members only and was not for publication. The Secretary read the scale of fees.

The PRESIDENT explained that the position in regard to the degree of publicity permissible for the scale was that certain Local Authorities were paying fees in advance of those laid down in the scale and that the receipt of the scale by these, or its publication in

the press, might lead these bodies to contemplate a reduction in the fees approved by the Association. These were, however, very exceptional cases, and there was no doubt that there was very great room for improvement in many areas.

Mr. STANDLEY thought the "National" should have approached the County Councils with a view to securing their acceptance of the scale.

It was pointed out that all efforts to move the County Councils Association had proved abortive.

It was eventually resolved, on the proposition of Mr. STANDLEY, seconded by Mr. POLES, "That the Lincolnshire and District Division of the N.V.M.A. are of opinion that the Association should approach those County Councils paying fees, for work under the Diseases of Animals Act, which are below those recommended by the Association as the minimum fees which should be paid by Local Authorities for such work, and request those bodies to adopt the scale as the basis of their remuneration."

The PRESIDENT then called upon Mr. Dickinson to read his paper on "Retained Placenta in the Mare and Cow." The paper was followed by an animated discussion, and both are reproduced elsewhere in this issue.

The PRESIDENT next called upon Mr. Poles to speak of a case, the subject of which he had brought for inspection in the yard of the hotel.

Mr. POLES said: On December 29th, 1924, my six-year-old hunter, after taking a jump, galloped on to the handle of a skerry, set in the headland of a field.

He pulled the skerry right over, and stood on his head. I got him back on his legs and on dismounting found the blood flowing profusely from the sheath. On examination I discovered that the handle had perforated the skin from near the soternum back to the sheath. It had entered the sheath by the side of the penis, passed through the sheath up in the groin, and made a hole as far as the femur. I could put my arm in up to the elbow. There was no wound externally in the groin. The hæmorrhage slackened after five minutes, and I had the horse walked straight home, a distance of seven miles. On arrival home, I thoroughly examined and syringed the wound with an antiseptic lotion and then plugged with cotton wool and carbolised oil. The wound healed in about two months. The horse did not lie down for the first six weeks.

After two months a small hole broke right up in the top of the groin and a small piece of bone ¼in. in length, came out. There was no smell and very little discharge. The small hole is still there, just large enough to insert a thin probe, which will go in for about 12 inches horizontally, and the wound discharges about a teaspoonful a day. There is no smell with this discharge.

The horse is perfectly sound, and I won a first prize at a show with him a fortnight ago. I used several injections to this thin pipe hole, but have not treated it in any way for the last six weeks. Shall be glad if any one can give me advice in the matter.

The meeting terminated with votes of thanks to the essayist, to Mr. Poles for his presentation of his case, and to the President for his conduct in the chair.

The members subsequently took tea together.

H. C. REEKS, JUNR.,
Hon. Secretary.

Central Division.

An interesting departure from the routine programme was made by the Central Division on Thursday, June 11th, when a visit was paid to the Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent, by invitation of the Director, Dr. R. A. O'Brien, C.B.E.

At the business meeting held prior to the proceedings attendant upon the visit, the President, Major P. J. Simpson occupied the chair, and the attendance book was signed by the following:—Messrs. Bryden, Cornell, Dayer-Smith, Ware, McIntosh, Dunlop Young, Tuck, Stephens, J. Willett, A. E. Willett, S. H. Slocock, Doyle, Minett, Taylor, McCunn, Winter, Gillard, Andrews, Jones, Bell, Davenport, Dunkin, Sir J. Moore, Messrs. Townson, Kirk, Perryman, Pugh, Mason, Dalling, Allan, Spicer, Glyn Lloyd and J. F. Macdonald, Hon Secretary.

Visitors.—Messrs. Richelet, Leyshon, W. R. Wooldridge and Howe.

The minutes of the previous meeting, having been published in the *Record*, were taken as read and were signed as correct.

Nomination.—Mr. T. H. Michie, of Enfield, was nominated for membership.

Elections.—The following were unanimously elected on a show of hands, as Fellows of the Society:—Messrs. D. T. Reid (Dorking), and A. E. Ward (Slough).

It was decided that the summer meeting be held on July 9th to avoid clashing with the R.C.V.S. Annual Dinner on the 2nd.

Mr. T. DALLING, M.R.C.V.S., then presented a paper descriptive of recent research work at the Wellcome Laboratories. [This paper appears elsewhere in the present issue—Ed.].

The subject of "Leptospiral Jaundice in Dogs" was dealt with in a most able manner by Mr. DALLING and Dr. OKELL, and that of "Tuberculin Standardisation" by Dr. OKELL and Dr. PARISH.

The party was subsequently conducted round the laboratories and stables, a most interesting and instructive time being spent.

The President and Mr. S. H. Slocock thanked Dr. O'Brien and his staff in the most cordial terms for the interesting papers and demonstrations provided by them for the benefit of the Society.

J. F. MACDONALD.
Hon. Secretary.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest in these columns.

Diary of Events.

July 14th—Meeting of the Derbyshire Division at Derby.

July 15th—Meeting of the West of Scotland Division.

July 16th—Meeting of the Western Counties Division at Torquay.

July 17th—Meeting of the North Midland Division at Sheffield.

July 17th—Meeting of the Mid-West and South Wales Division at Newport.

July 31st—Meeting of the North Wales Division at Bangor.

We are informed that, in connection with the demonstration of Intradermal tuberculin testing, to be given by Professor Buxton on the occasion of the visit of the Mid-West and South Wales Division to Monmouth on July 17th, the professor has arranged to send one of his staff to test a few animals previous to the meeting, in order that reactors may be seen and examined.

* * * *

A whole day (Friday, July 24th) will be devoted by the Section of Medical Sociology, on the occasion of the 93rd Annual Meeting of the British Medical Association at Bath, to discussion of the possibility of obtaining a pure milk supply. At the morning session R. Stenhouse Williams, M.B., D.P.H., National Institute for Research in Dairying, Reading (Bacteriologist); W. G. Savage, M.D., D.P.H., M.O.H., Somersetshire (Medical Officer of Health); and G. Eric C. Pritchard, M.A., M.D., M.R.C.P., Consulting Physician Queen's Hospital for Children (Physician); will open a discussion on "What should be the standard of purity in milk"; and at the afternoon session the openers on the subject: "By what means can pure milk be obtained and the cost" will be Mr. Wilfred Buckley, C.B.E., London, National Clean Milk Society (Producer); Mr. G. P. Male, M.R.C.V.S., Lecturer in Veterinary Hygiene at University College, Reading (Veterinary Surgeon); and Mr. J. H. Maggs, Wiltshire, Chairman United Dairies Ltd. (Distributor). At 12-15 two films will be shown with the following titles: "Production of Certified Milk on an English Farm"; "Handling and distribution of Milk in New York City."

Dr. A. Stanley Griffith, of the Field Laboratories, University of Cambridge, dealing with "The Causes and Prevention of Tuberculosis in Children," at the eleventh Annual Conference of the National Association for the Prevention of Tuberculosis (held in London on Monday) said that although in the population generally the mortality from all forms of tuberculosis had declined during the past half-century, among children tuberculosis in one form or another was still very prevalent, and was one of the chief causes of death and ill-health. Explaining the result of investigations, he said, the human tubercle bacillus was the more frequent cause of tuberculosis in children and was found in 82.4 per cent. of an unselected series of children under 12 years of age dying from all causes. The bovine tubercle bacillus was also an important source of human tuberculosis. It might legitimately be asked, he continued, why, when the evidence was so conclusive of the danger to man of tuberculous cow's milk, so few steps had been taken to reduce the menace. Tuberculosis in cattle was more prevalent now than ever it was—one in every three milch cows was said to be tuberculous in some degree—and at the present day tuberculous milk was being sold for human consumption and was causing death and disease among children.

The ordinary person did not apparently realise that raw cow's milk frequently contained living germs which might set up fatal or crippling disease in children. Tuberculosis was generally a slowly developing disease. Many months might elapse before the consequences of ingesting bovine tubercle bacilli in milk became manifest. These were not attributed by the affected persons to cow's milk consumed months previously, and, indeed, no one except the bacteriologist could decide whether or not a case of tuberculosis was due to infection with bovine tubercle bacilli. One could, however, hardly expect the general public fully to appreciate the danger of tuberculous milk until the medical profession itself became unanimous upon the desirability of attempting to eliminate all tubercle bacilli from the milk supply. Until the ideal of tubercle-free herds had been attained all milk which was not obtained from such herds, or was not efficiently pasteurized, should be sterilized in the home before being given to infants, children, or sick persons.

* * * *

Sir Henry Gauvain, speaking at a later session on the prevention and treatment and after-care of surgical tuberculosis in children, said that between 30 and 40 per cent. of children under ten suffering from surgical tuberculosis had been infected from bovine sources. As age increased this percentage dropped, so that in the adult it became relatively small, though still considerable enough to need attention. No single article of food produced more misery, disability, or a higher mortality than milk. He could not appreciate the logic that permitted this state of affairs to persist when by courageous action it could be avoided. No one could persuade him that it was anything but wrong to allow many thousands of children to die annually and many thousands more to be permanently disabled, detrimentally affected, or even simply imperilled by being exposed to a danger which was entirely preventible. As to the argument that drinking slightly infected tuberculous milk would enable them to acquire immunity to infection, he regarded it as a dangerous, filthy, and unnecessary doctrine. It was a pure theory, and even if proved to be correct there would be

better ways of obtaining such immunity than drinking infected milk from a diseased cow. They would hesitate to eat infected oysters knowingly to immunise themselves against typhoid fever.

* * * *

Dr. John Fraser, Professor of Clinical Surgery, University of Edinburgh, referred to the relative incidence of surgical tuberculosis among town and country children respectively. He showed how cases had been classified into rural and urban groups, and said that to their surprise they found that the preponderance of affected children came from country districts. They had come to the conclusion that in Scotland surgical tuberculosis was more frequent among dwellers in the country districts than among those resident in the cities. The explanation, he thought, was closely related to the question of milk supply.

* * * *

At the end of the conference a resolution was passed, to the effect that a considerable proportion of tuberculosis in childhood is due to infection through the presence of tubercle bacilli in milk offered for human food. It urged the Government to render effective the provisions of the Milk and Dairies' Act; and also urged the desirability of including in school education more instruction regarding health and the simple methods for the prevention of tuberculosis.

Frank Garnett Memorial Fund.

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Royal College of Veterinary Surgeons.

OBITUARY.

MCAFEE, JAMES, junr., Capt. late R.A.V.C., Little James Street, Londonderry. Graduated Edinburgh, May 28th, 1912. Died 28th June, 1925.

SEWELL, EDWARD, M.C., Capt. late R.A.V.C. and Indian Veterinary Service. Graduated Edinburgh, December 12th, 1913. Died 27th June, 1925.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication

The Editor does not hold himself responsible for the opinions of his correspondents.

The Annual Meeting of the R.C.V.S.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Having read the correspondence appearing in your columns re the Annual Meeting of the R.C.V.S., may I say how heartily I endorse the line taken by the Editor. Has it come to this, that the National Veterinary Medical Association has to be mute when happenings affecting the honour of the profession take place? Surely we may be thankful that the *Veterinary Record* has an Editor with the courage of his convictions; one who speaks out and tells the members, who have no opportunity of attending these functions which directly or indirectly affect their welfare, what are the facts of the case. As for "washing our dirty linen before the public," even if it were true—which it is not—where else is the Veterinary Profession to find its voice, except through the columns of its weekly organ? Long may you continue, Mr. Editor, fearlessly to tell us what are the real facts, not only in the matter now under discussion, but on any and every question affecting the honour and welfare of the profession to which we belong.—Yours faithfully, W. BROWN, J.P., M.R.C.V.S.,

Wiveliscombe, Somerset,
July 4th, 1925.

The Exportation of Horses.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I have been reading with interest the letters of Mr. Donald Campbell, M.R.C.V.S., Rutherglen and Miss Cole (on one aspect of the above question, namely, that of the exportation of horses for slaughtering purposes). This matter, however, is only a part of the great question of the transport of animals in general which is a very wide and interesting subject to veterinary surgeons, as all animals require in transport special facilities and requirements for their individual needs. Veterinary science demands special study of this question and practical acquaintance with the individual needs of animals transported by land and sea, so that expert service may be obtained from the profession when required. The carriage of horses, cattle, sheep and goats, pigs, dogs and cats, poultry and other fowls each require its own special study.

The question of cruelty to animals in transit, like the question of cruelty to animals in general, should, in my opinion, be treated not as a matter of sentiment (as it is generally treated) but with reason and sound common sense and with due regard to the particular facts in every case, otherwise very wrong findings will be the result. From a veterinary point of view (which is the only view a veterinary surgeon should take in all such matters), and with all due deference to other professions and trades, the present conduct of cruelty to animals cases is deplorable. Instead of the veterinary surgeon being asked to direct matters concerning the care and the treatment of animals he is being continually dictated to by members of other professions and also by laymen as to what he should or should not do in any particular case or cases. It might be all right if the parties concerned had a right to so dictate to veterinary surgeons, but they do not hold any mandate to do

so and in most cases have not sufficient knowledge of the subject to do so. A smattering of hearsay knowledge is worse than useless for practical purposes. I hope this subject will receive the attention in future that it demands and that the veterinary profession will soon have within its ranks members who can be called on and relied upon to give an expert opinion on any points that may arise from time to time. I know the veterinary profession has a few such members already, but younger members might have a special training in this particular branch of the Veterinary Profession.—Yours, etc., J. DONALDSON POTTIE, M.R.C.V.S.

Lienteric Diarrhœa.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—A case of Lienteric Diarrhœa reported by Dr. Hare in your last issue has brought forward a condition often met with by the country practitioner, and one which very often leaves in his mind considerable doubt as to what might have been the causal factor. Another similar case in point which has occurred recently was reported by Mr. Llewelyn-Jones, Denbigh, in the *Veterinary Record*, of January 10th, 1925.

Dr. Hare mentioned that these cows were turned out the previous day on to succulent grass and that a certain number of cows drank a large quantity of water after having been brought in from the field. He presumed it was those cows which drank water at this time that later developed diarrhœa, one passing blood, etc. Although I do not disagree with Dr. Hare's diagnosis that the case resembled the Lienteric Diarrhœa met with in boys from the ingestion of unripe apples, or that the presence of undigested food in parts of the intestines could be sufficient irritant to cause diarrhœa, nevertheless, in this case I think his diagnosis too presumptive, in as much that insufficient reasoning is put forward why the grass which had not been cudded should have passed from the rumen into the intestines in those cows which drank water

Again, more advantage might have been taken, in arriving at a diagnosis, of making a thorough examination of the character and quality of the shippon ration, the water and grass which the animals ingested.

I hope that other veterinary surgeons will report similar cases.—I am, sir, Yours faithfully, WILLIAM TWEED,

The Mallan, Ballymoney,
July 6th, 1925.

Royal Sanitary Institute's Congress, Edinburgh.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—In your issue of the 20th of June, you published the full programme of the Veterinary Inspectors' Conference at the above Congress.

Mr. Gofton has informed me that a Garden Party, given by the Lord Provost of Edinburgh, has been arranged for Thursday afternoon, July 23rd, and therefore the demonstration on meat inspection by Mr. J. Howard Jones and the visit to the cattle markets arranged for that day will take place at Gorgie, on Friday, July 24th, at 2-30 p.m. —Yours faithfully, JAMES R. HAYHURST,

Metropolitan Cattle Market,
Islington,
London, N.7,
July 3rd, 1925.

The Editor acknowledges the receipt of the following:—

Report of a meeting of the Lancashire Division, from Mr. J. Spruell, Hon. Secretary.

Communication from Dr. Tom Hare.

National Veterinary Medical Association of Great Britain and Ireland.

EDITORIAL OFFICE: 10 Gray's Inn Square, London W.C.1.

Cheques should be made payable and all communications sent to the General Secretary at the Offices of the Association, 10 Gray's Inn Square, London, W.C.1.

National Veterinary Medical Association.

THE ANNUAL CONGRESS WILL BE HELD AT CAMBRIDGE,

AUGUST 17th to 22nd, INCLUSIVE.

Members are advised to secure accommodation at once by applying to the Local Secretary, Col. W. A. Wood, School of Agriculture, Cambridge.

Firms desiring places in the Drug and Instrument Exhibition should apply for terms, etc., to the Local Secretary at Cambridge, as above, by whom all arrangements will be made.

Advertisers who wish to take space in the Advertisement Pages of the Congress Handbook should apply without delay to the Assistant Secretary, N.V.M.A., 10 Gray's Inn Square, W.C.1.